



# TEACHING THOUGHTS ON ELIMINATING GENERATION GAP BETWEEN CONTEMPORARY COLLEGE STUDENTS AND MATHEMATICS TEXTBOOKS

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## ABSTRACT

There are more and more channels for college students to acquire knowledge, and the explanations of knowledge are also rich and varied. College mathematics textbooks seem dull, so it is of great significance to eliminate the generation gap between contemporary college students and mathematics textbooks.

**KEYWORDS:** college students, university mathematics; mathematics textbook.

With the rapid development of information technology, there are more and more channels for contemporary students to acquire knowledge, such as smart phones, movies and television, extracurricular books and magazines, the Internet and so on. Unlike these extra-curricular channels, university mathematics is logically rigorous and thinking rigorous, so a large number of students feel that mathematics is boring, dry and difficult to understand, and there is an insurmountable gap between mathematics textbooks, slowly losing interest in mathematics, began to hate mathematics, directly affecting the follow-up study and work. In order to eliminate the generation gap between students and mathematics textbooks, university mathematics teachers should shoulder important responsibilities. University mathematics teachers should be mediators and peacemakers between them.

### 1. Deeply interpreting students' textbooks:

Interpreting the textbook in depth is a comprehensive interpretation of student development and school social background.

Deep reading of textbooks begins with studying students. College mathematics teachers should make full preparations and improve themselves from various aspects. For example, they should read more professional books, watch more videos of famous teachers and study more students so as to make college mathematics classes more profound and connotative.

If the teacher does not prepare enough lessons, teaches according to the textbook, how to write in the textbook, how to speak in the original place, lack of interpretation of the textbook, then we can not grasp the essence of knowledge and the relationship between them, and can not grasp the focus of the textbook. In this way, students can not learn the connotation of mathematics and become less and less interested in mathematics.

Only through the in-depth interpretation of the textbook, can we excavate the value of the ability of knowledge that the textbook itself does not write out, in order to facilitate the cultivation of students' ability.

- 1.1 Transposition with author. To realize the dialogue with the author is to understand and grasp the author's writing intention, what kind of thoughts and feelings the author wants to express, and what kind of information he wants to convey. Find out what the author wants to say.
- 1.2 Any article is placed in a specific paragraph and specific unit, and has its functions and reasons. And this is an important basis for your determination of teaching objectives. Having made clear the intention of the compilers, you will be able to identify the teaching objectives and implement your teaching step by step. To achieve dialogue with the editor, we must read through the teaching materials and comprehend the training system of the whole textbook. The compilation of textbooks has its own strong systematicness. Knowledge accumulation and training are spiraling up step by step from easy to difficult.
- 1.3 Teachers grasp the systematicness of textbook knowledge, which is equivalent to grasping the fundamentals of textbooks. When teaching, they know what knowledge should be said, should be thoroughly explained, should be expanded, should be extended. Classes will not be at a loss, but targeted and taught for learning purposes.

### 2. Rational use of teaching materials:

University teachers should adjust their textbooks appropriately and give full play to the teaching materials.

Teachers use textbooks instead of teaching materials. Teachers should make it clear that textbooks are important resources for teaching. Teaching can not be separated from textbooks. They should endow textbooks with life and grasp them flexibly. Calculating integral by examples:

$$I = \int_{|z|=2} \frac{z^{100}}{z^{101} - 1} dz$$

$$I = \int_{|z|=4} \frac{z^9}{z^{10} - 1} dz = \frac{1}{10} \int_{|z|=4} \frac{(z^{10} - 1)'}{z^{10} - 1} dz$$

$$= \frac{1}{10} 2\pi i (10 - 0) = 2\pi i$$

Teachers should grasp the intention of compiling textbooks, clarify the teaching objectives, grasp the direction of teaching, inject mathematical thinking activities into students at all times, create mathematical classroom activities for students, and enrich students' activity experience. Teaching material is an important carrier and basis for teachers' teaching resources, but it is not the only criterion. When using textbooks, we should respect textbooks, proceed from the actual situation of schools, students and ourselves, actively, reasonably and creatively reprocess textbooks, give full play to the role of new textbooks, guide students into textbooks, into life, to feel the connotation of mathematics, and to realize the charm and value of mathematics.

### 3. Expand the breadth of thinking:

The breadth of thinking refers to the vertical and horizontal connections of certain knowledge. In the process of teaching, on the one hand, teachers should not let students confine themselves to textbooks. They should guide students to be good at analyzing, summarizing and comparing so as to find out the rules of learning, so that they can draw inferences from each other and understand by analogy. On the other hand, we should not violate the rules of learning and link blindly.

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### REFERENCES:

1. Raman M. Coordinating informal and formal aspects of mathematics: student behavior and textbook messages[J]. Journal of Mathematical Behavior, 2002, 21(2):135-150.
2. Tian-Fu Q, Jia L X, Zhu Q S. Research on Edition of Mathematics Textbook for College Students of Technology in System of Quality Education[J]. Journal of Henan Institute of Education, 2013.
3. Shepherd M D, Selden A, Selden J. Difficulties First-Year University Mathematics Students Have in Reading Their Mathematics Textbook. Technical Report. No. 2009-1.[J]. Online Submission, 2009:45.
4. Andrew F. Mathematics and Mourning: Textbook Burial and Student Culture Before and After the Civil War, 1853â1880[J]. History of Education Quarterly, 2017,

57(2):221-246.

5. Quesada A R, Maxwell M E. The Effects of Using Graphing Calculators to Enhance College Students' Performance in Precalculus[J]. Educational Studies in Mathematics, 1994, 27(2):205-215.
6. Zheng L C, Zhu J, Xin-Hui S I. The Thinking on How to Train Students Innovation Ability in High Mathematics Teaching[J]. College Mathematics, 2014.
7. LeCuyer, Edward J., Jr. Teaching a Survey of Mathematics for College Students Using a Programming Language.[J]. College Mathematics, 1977:8.
8. Rezat S. Interactions of Teachers' and Students' Use of Mathematics Textbooks[M]// From Text to 'Lived' Resources. Springer Netherlands, 2011:231-245.